

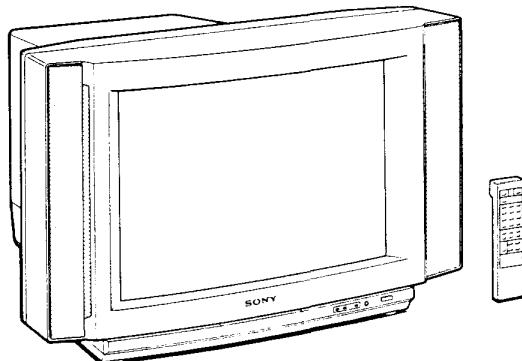
# KV-2964HN

## RM-687D

## SERVICE MANUAL

Hong Kong Model

Chassis No. SCC-E25A-A



## GP-1A CHASSIS

### MODELS OF THE SAME SERIES

KV-2964AS

KV-2964MT

### SPECIFICATIONS

Television system I, D/K  
Color system PAL, NTSC<sub>3.58</sub>, NTSC<sub>4.43</sub>  
Channel coverage

Television system	I	D/K
Low VHF band	—	1 – 5
High VHF band	—	6 – 12
UHF	B21 – B68	13 – 57

Picture tube Trinitron tube  
Approx. 72.4 cm (29 inches)  
110-degree deflection  
(Approx. 68 cm picture measured  
diagonally)

Antenna 75-ohm standard coaxial socket  
Speakers Woofer 12 × 5 cm

Audio output Tweeter 5 cm ø  
Inputs 6 W + 6 W  
VIDEO INPUT 1 and 2 jacks:  
phono jacks  
S-TERMINAL VIDEO INPUT jack:  
4-pin DIN  
Video: 1 Vp-p, 75 ohms  
Audio: 500 mVrms, high impedance

### Outputs

MONITOR OUT jacks:  
phono jacks  
Video: 1 Vp-p, 75 ohms  
Audio: 500 mVrms, low impedance

Power requirements 110 – 240 V AC, 50/60 Hz

Power consumption 170 W

Dimensions (w/h/d) Approx. 800 × 574 × 531 mm  
(31 1/2 × 22 5/8 × 21 inches)

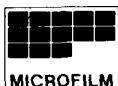
Weight Approx. 48kg (105 lb 13 oz)

### Accessories supplied

RM-687D Remote Commander (1)  
R6 (size AA) batteries (2)  
AC Power cord plug adaptor (1)

Design and specifications are subject to change without notice.

TRINITRON® COLOR TV  
**SONY**®



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**SAFETY-RELATED COMPONENT WARNING!!**

COMPONENTS IDENTIFIED BY SHADING AND MARK ! ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

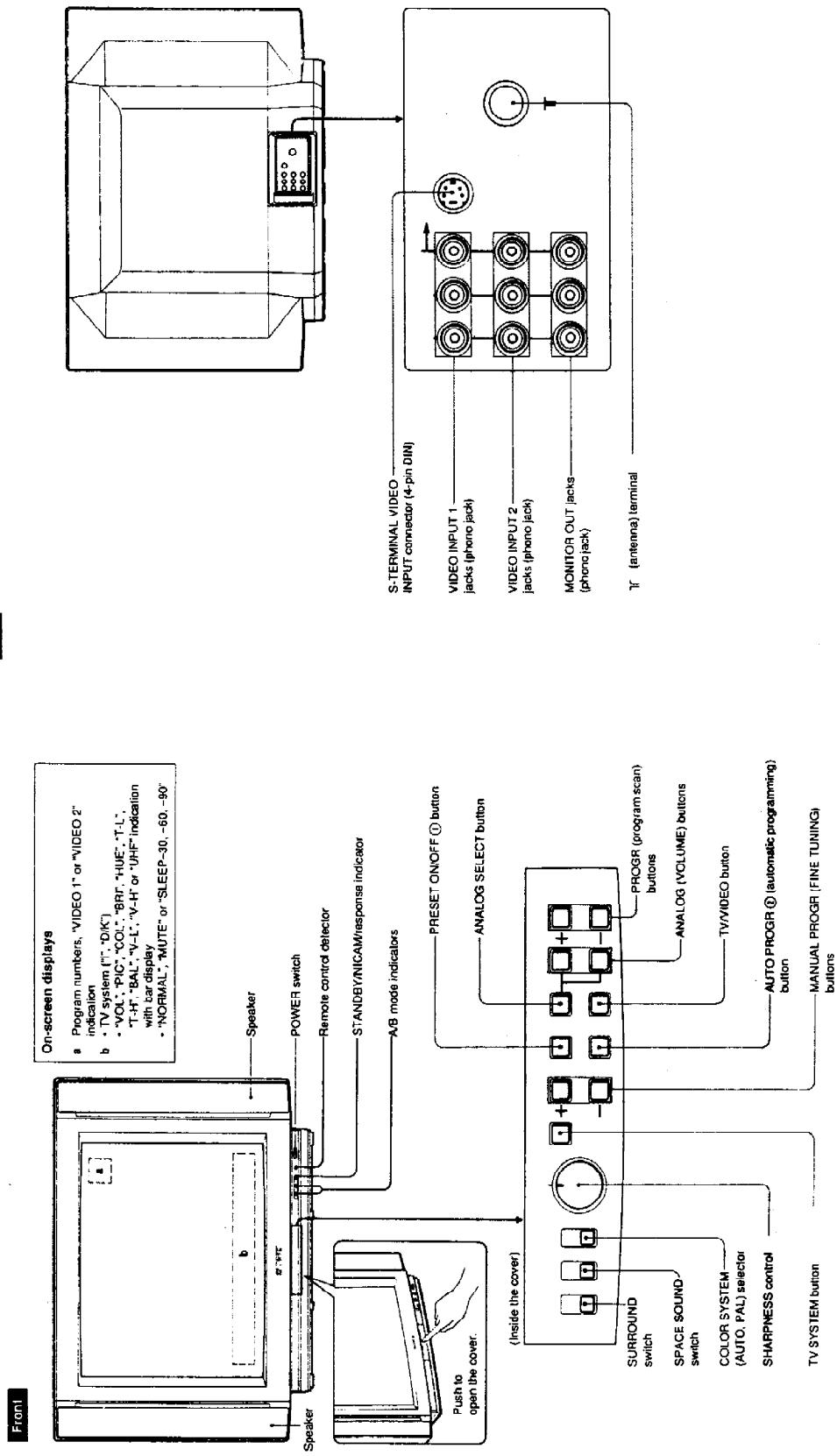
**CAUTION!!**

DO NOT USE THE EXTERNAL DEGAUSSER TO DEMAGNETIZE THE SCREEN.  
BE SURE TO USE THE DEGAUSS SWITCH ON THE FRONT PANEL.

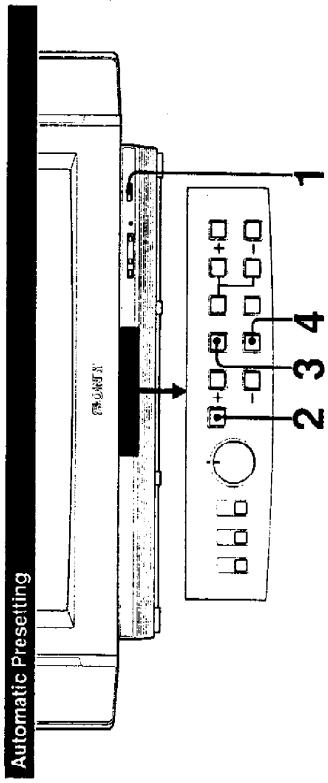
# SECTION 1

## GENERAL

### 1-1. PARTS IDENTIFICATION



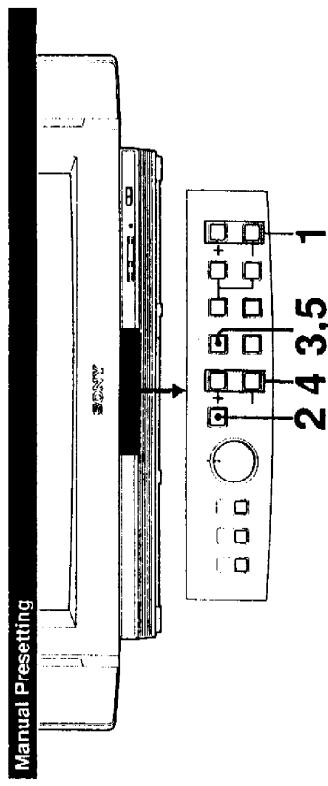
## 1-2. PRESETTING THE RECEIVABLE CHANNELS



- 1** Turn the TV on.
  - 2** Select the TV system. (See page 8.)
  - 3** Press PRESET ON/OFF ①.
  - 4** Press AUTO PROGR ②.
- Up to 30 receivable channels are preset in numerical sequence beginning from program number 1. When all receivable channels are preset, program number 1 lights steadily on the screen and the programming mode is automatically released.
- While presetting, the program numbers blink.

**Note**  
While resetting receivable channels automatically, the TV cannot be controlled by the Remote Commander.

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- 1** Turn the TV on.
  - 2** Select the TV system.
  - 3** Press PROG +/- to select the desired program position.
  - 4** Press PRESET ON/OFF ①.
- To change the order of a channel which was set earlier, use manual presetting.  
Also use manual presetting to set channels with weak signals, as the unit is designed to memorize only channels with fairly strong signals when automatically presetting the receivable channels.
- 5** Press PRESET ON/OFF ① again.  
Repeat steps 1 through 5 for other desired channels.

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- Note**  
While presetting receivable channels automatically or manually, do not press buttons on the Remote Commander. Otherwise, presetting will be stopped. If this happens, return to the beginning of the presetting operation.
- Selecting the TV system**
- Select the proper TV system that can be received in your area. Each time TV SYSTEM is pressed, the 1 and DK indications appear in turn.
- 1 : TV System in Hong Kong
  - DK : TV system in China
- Notes**
- If more than one TV system can be received in your area, select the main TV system of the area. All receivable channels can be preset in the selected TV system.
  - Resetting of TV system is described in "Watching TV programs".
  - Wrong setting of the TV system causes the distorted, or noisy sound, or abnormal color.
  - The TV system setting is memorized for each program position. Therefore, the TV system can be reset for only the desired program position without affecting other program positions.

- 1** Press PROG +/- to select the desired program position.
- 2** Select the TV system.
- 3** Press PRESET ON/OFF ①.  
Program number on the screen blinks. A colored segmented bar appears to indicate approximate location of the channel being tuned in.
- 4** Press MANUAL PROGR (FINE TUNING) repeatedly until the desired channel appears.  
- : to scan higher-frequency channels  
+ : to scan lower-frequency channels
- 5** Press PRESET ON/OFF ① again.  
Repeat steps 1 through 5 for other desired channels.

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### 1-3. WATCHING TV PROGRAMS

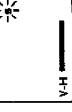
**Skiping Unused Program Positions**

After presetting channels, unused or undesired program positions can be skipped.

**Restoring the skipped channel**

- 1 Turn the TV on.
- 2 Press PRESET ON/OFF ①.
- 3 Press PROGR +/- to select the position to be skipped.
- 4 Press NORMAL on the Remote Commander. Repeat steps 3 and 4 for other positions to be skipped.
- 5 Press PRESET ON/OFF ① again.

**Program number on the screen blinks.**  
A colored segmented bar appears to indicate approximate location of the channel being tuned in.



**Watching TV Programs**

**1 Turn the TV on.**

**2 Select the desired channel.**

**3 Adjust the volume.**

**On-screen display**

The following on-screen displays appear:

Remote Commander	TV
Press STANDBY.	To turn off the TV for a short period of time
Press a program number or PROGR buttons.	To turn on the TV from the standby mode
Press POWER.	To cut off the power completely
Press DISPLAY.	To keep the channel display (program number and "VIDEO 1, 2" indication) on the screen
Press DISPLAY.	To turn off the channel display (program number and "VIDEO 1, 2" indication)
Press DISPLAY.	To display the TV system indication

**On-screen display**

The STANDBY/VIDEO response indicator blinks when the button on the TV or on the Remote Commander is pressed. It lights steadily when the TV is turned off with the STANDBY button on the Remote Commander.

**On-screen display**

The following on-screen displays appear:

When the power is turned on, or when the program is changed (despite pressing the DISPLAY button)	Program number
When the VIDEO button is pressed	Program number, VIDEO 1 or VIDEO 2
When the DISPLAY button is pressed	Program number and TV system, or VIDEO. The TV system display will disappear after a few seconds

To turn off the on-screen display, press the DISPLAY button.

## 1-4. ENJOYING THE FEATURES OF THIS TV

### Picture and sound adjustments

Item to be adjusted	Press buttons on Remote Commander	TV	On-screen display
Sound level	VOL	ANALOG (VOLUME) + -	VOL
Picture contrast	SELECT → + -	ANALOG SELECT → + - ANALOG (VOLUME) + -	PIC
Color intensity	SELECT → + -	ANALOG SELECT → + - ANALOG (VOLUME) + -	COL
Brightness	SELECT → + -	ANALOG SELECT → + - ANALOG (VOLUME) + -	BRI
Hue (NTSC color system only)	SELECT → + -	ANALOG SELECT → + - ANALOG (VOLUME) + -	HUE
Bass	SELECT → + -	ANALOG SELECT → + - ANALOG (VOLUME) + -	T-L
Treble	SELECT → + -	ANALOG SELECT → + - ANALOG (VOLUME) + -	T-H
Balance	SELECT → + -	ANALOG SELECT → + - ANALOG (VOLUME) + - to increase sound from the T-H speaker or - to increase sound from the BRI speaker.	BAL
To reset PIC, COL, BRI, HUE, T-L, T-H and BAL to factory-set levels	-	-	NORMAL
Sharpness	-	-	Turn SHARPNESS clockwise for a sharper picture, or counterclockwise for a softer picture. The white mark indicates the center position.
To mute the sound	MUTE	-	MUTE
To restore the sound	VOL + -	ANALOG (VOLUME) + -	VOL

### Enjoying a NICAM system program

This TV can receive a NICAM stereo, bilingual and monaural system program. When the TV receives a NICAM system program, the (NICAM indicator and A, and/or B mode indicator light). To select the sound, press A/B on the Remote Commander. Each time A/B is pressed, the sound changes and the indicator light is shown on the table below.

	When TV receives:	Press A/B:	Press A/B:
NICAM stereo	Stereo	Stereo	Regular
Sound Indicator	NICAM+A,B	NICAM+A,B	NICAM
NICAM bilingual	A	B	Regular
Sound Indicator	NICAM+A	NICAM+B	NICAM
NICAM monaural	A	A	Regular
Sound Indicator	NICAM+A	NICAM+B	NICAM

\* In the NICAM monaural mode, the A mode sound is output even though the B mode indicator lights.

### Note

For the NICAM bilingual or monaural program the same sound is output from both speakers.

### \* SELECT button on the Remote Commander/ANALOG SELECT button on the TV

Each time SELECT or ANALOG SELECT is pressed, PIC (picture contrast), COL (color intensity), BRI (brightness), HUE, T-L (bass), T-H (treble) or BAL (balance) appears in this order. Turn on the item to be adjusted and press the + or - button. Pressing the + or - ANALOG (VOLUME) button on the TV without pressing ANALOG SELECT controls the volume.

### Note

TV SYSTEM setting has no effect on the signal input through the VIDEO IN and AUDIO IN jacks

### Setting COLOR SYSTEM

Normally set COLOR SYSTEM to AUTO. In case of getting abnormal color reproduction (for example, the picture turns red or blue) while receiving weak or inferior quality PAL color system signals, set COLOR SYSTEM to PAL. The picture color will become normal.

### Enjoying surround and space sound effects

To activate surround effect for stereo sound Set SURROUND to ON during a stereo sound reproduction. You can obtain sound reproduction with the atmosphere of a movie theater or concert hall. This function is not effective for a monaural sound.

To activate space sound effect for monaural sound Set SPACE SOUND to ON during a monaural sound reproduction. You can obtain sound reproduction with special acoustic effects.

To restore the normal sound Set SURROUND or SPACE SOUND to OFF.

### Note

If both SURROUND and SPACE SOUND are set to ON during a stereo sound reproduction, the surround function has priority over the space sound function.

### Turning off the TV at the desired time - sleep function

The TV can be automatically turned off after approximately 30, 60, or 90 minutes.

Each time SLEEP on the Remote Commander is pressed, the indication on the screen changes as follows.

SLEEP-30 → SLEEP-60 → SLEEP-90 → Sleep off (no indication)

### Example: To turn off the TV after 60 minutes

Press SLEEP until SLEEP-60 is displayed on the screen.

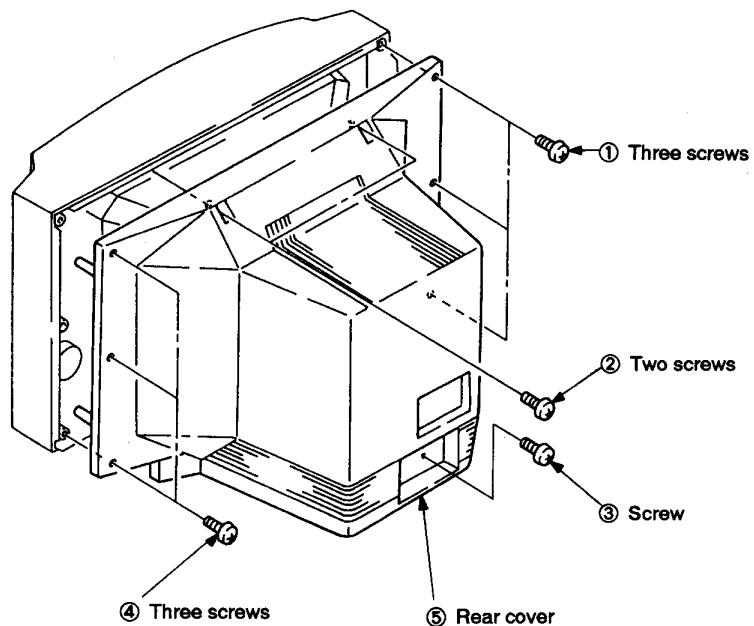


To cancel the sleep function, press SLEEP until no indication is displayed on the screen.

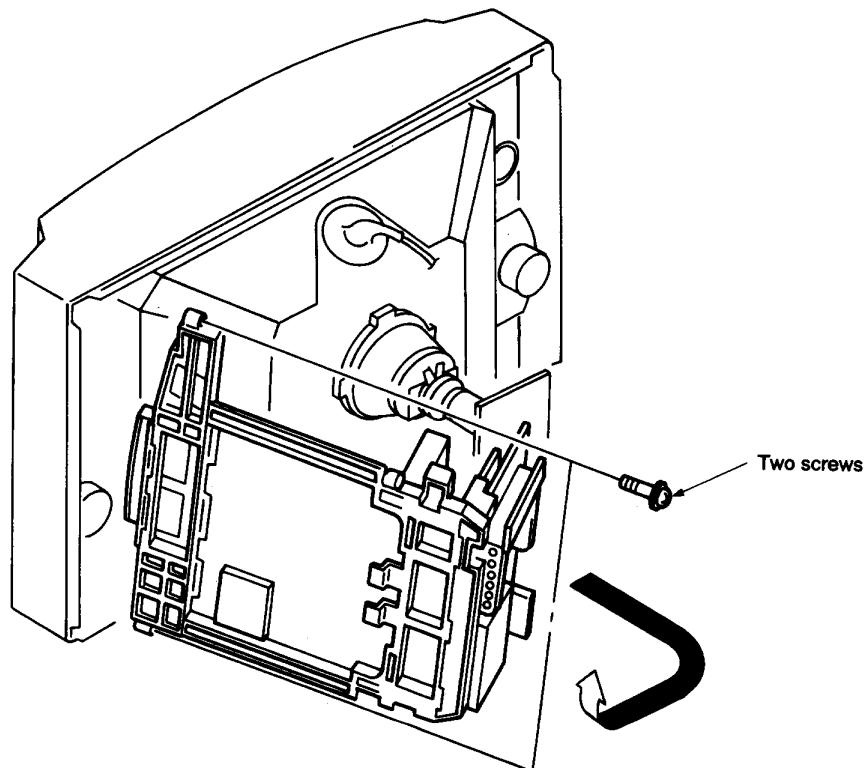
## **SECTION 2**

### **DISASSEMBLY**

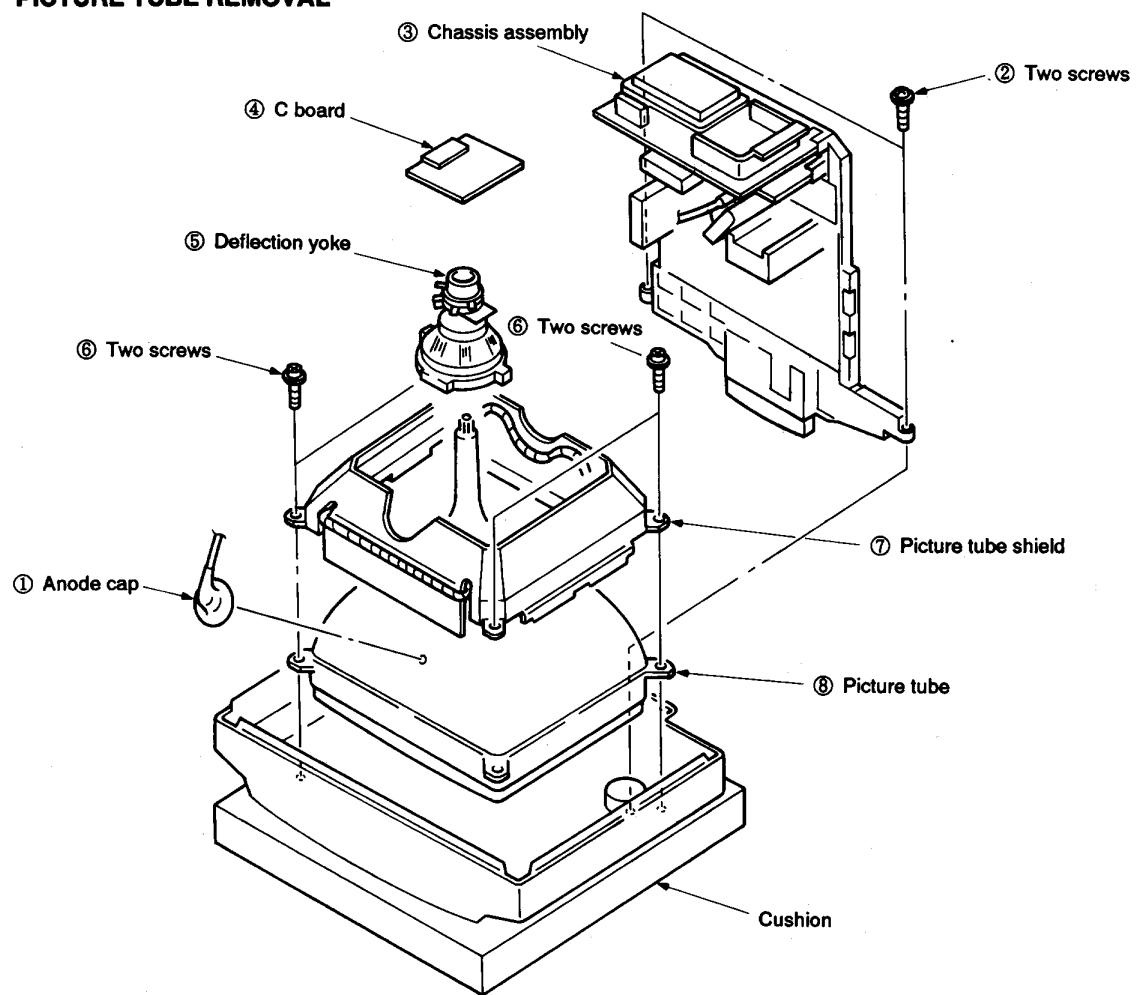
#### **2-1. REAR COVER REMOVAL**



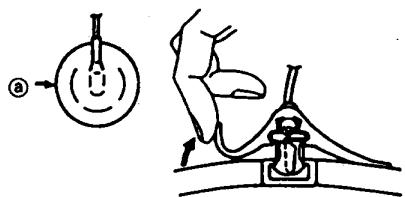
#### **2-2. SERVICE POSITION FOR A BOARD**



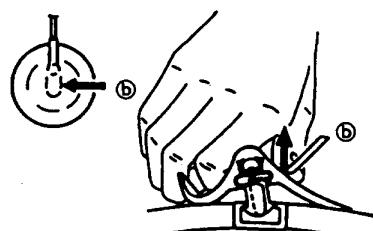
### 2-3. PICTURE TUBE REMOVAL



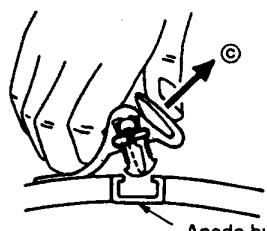
- REMOVAL OF ANODE-CAP
- REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ④.



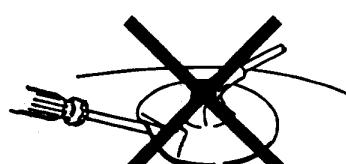
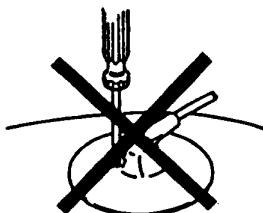
② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⑤.



③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⑥.

- HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!  
A metal fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!  
The shatter-hook terminal will stick out or hurt the rubber.



## SECTION 3 SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

The control and switch below should be set as follows unless otherwise noted :

PICTURE control ..... normal

BRIGHTNESS control ..... normal

Perform the adjustments in order as follows:

### Preparation

- Feed in the white pattern signal.
- Before starting degauss the entire screen.

### 3-1. BEAM LANDING

1. Input a raster signal with the pattern generator.
2. Loosen the deflection yoke mounting screw, and set the purity control to the center as shown in Fig.2.
3. Turn the raster signal of the pattern generator to green.
4. Move the deflection yoke backward and adjust with the purity control so that green is in the center and red and blue are at the sides evenly. (Fig.3)
5. Move the deflection yoke forward and adjust so that the entire screen becomes green. (Fig.1)
6. Switch over the raster signal to red and blue and confirm the condition.
7. When the position of the deflection yoke is determined, tighten it with the deflection yoke mounting screw.
8. When landing at the corner is not right, adjust by using the disk magnets. (Fig.4)

### 1. Beam Landing

### 2. Convergence

### 3. Focus

### 4. White Balance

**Note:** Test Equipment Required.

1. Color-bar Pattern Generator

2. Degausser

3. Digital multimeter

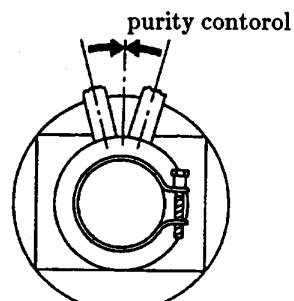


Fig. 2

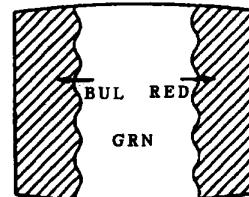


Fig. 3

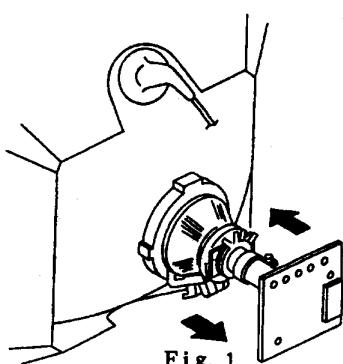
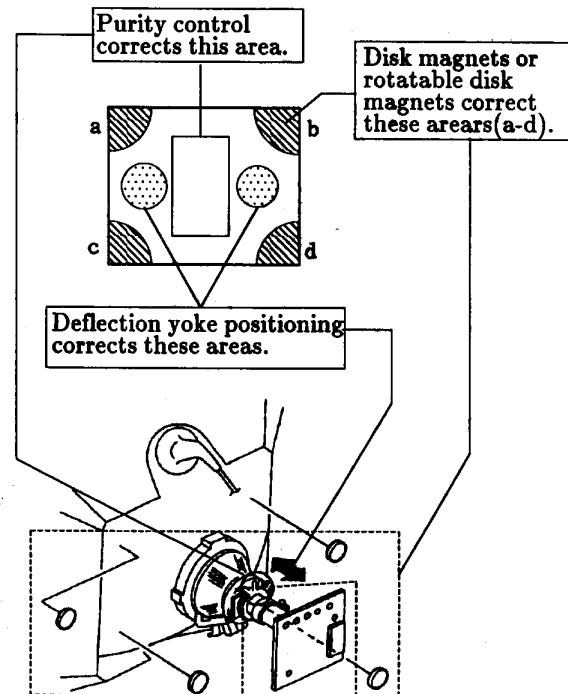


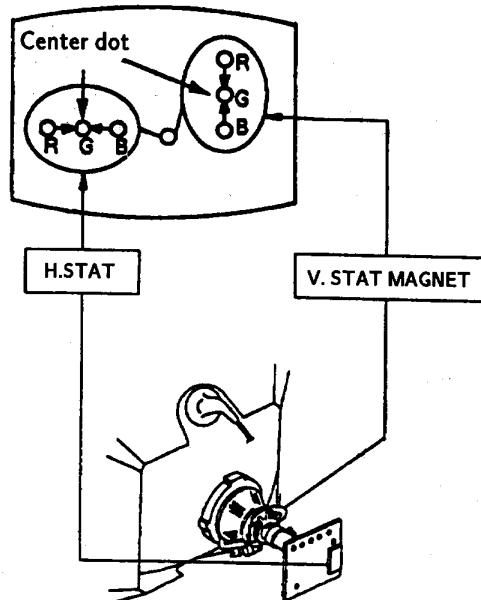
Fig. 1

### 3-2. CONVERGENCE

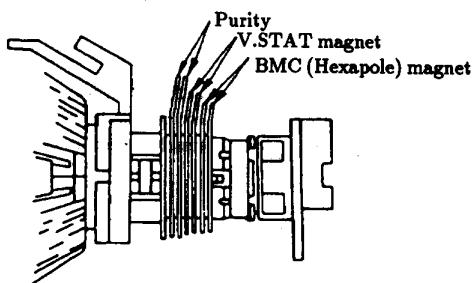
#### Preparation

- Before starting perform FOCUS, H.SIZE, V.LIN and V.SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Feed in dot pattern.

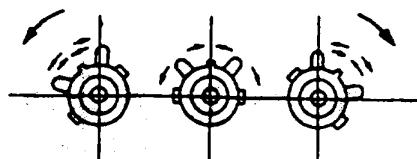
#### (1) Horizontal and Vertical Static Convergence



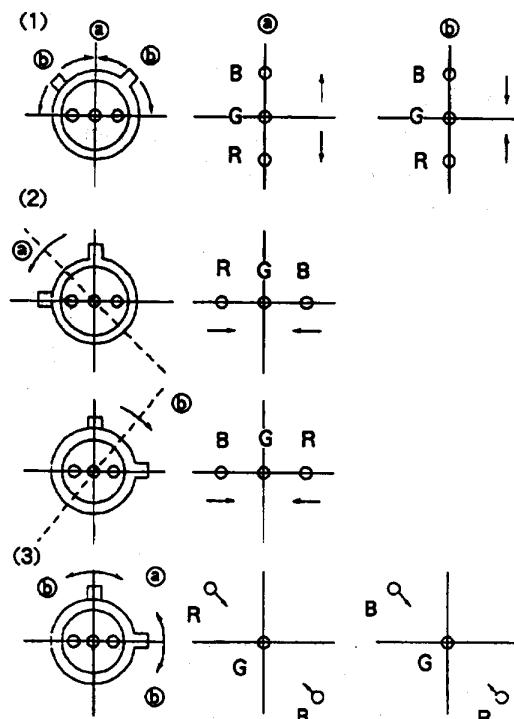
1. Adjust H.STAT VR to converge red, green and blue dots in the center of the screen. (Horizontal movement)
2. Adjust V.STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
3. If the red, green and blue dots do not converge in the center of the screen with H.STAT VR, perform horizontal convergence adjustment using H.STAT VR and V.STAT magnet as shown below.(In this case, H.STAT VR and V.STAT magnet effect each other.)



- Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



4. When the V.STAT magnet is moved in the direction of arrow ④ and ⑤, red, green and blue dots move as shown below.

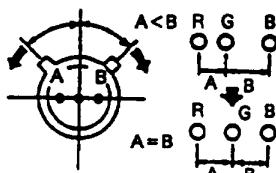


If the blue dot do not Converge with red and green dots, perform following steps.

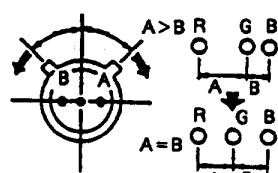
- HMC and VMC correction for BMC (Hexapole) Magnet.

1. HMC (Horizontal Miss Convergence) correction and motion of the Electron Beam with the BMC Magnet.

HMC correction (A)

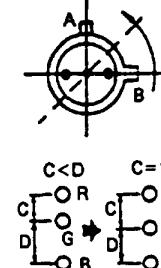


HMC correction (B)

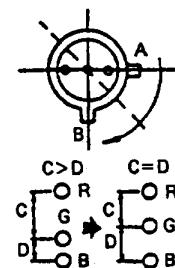


2. VMC (Vertical Miss Convergence) correction and motion of the Electron Beams with the BMC Magnet.

VMC correction (A)



VMC correction (B)



## (2) Dynamic Convergence Adjustment

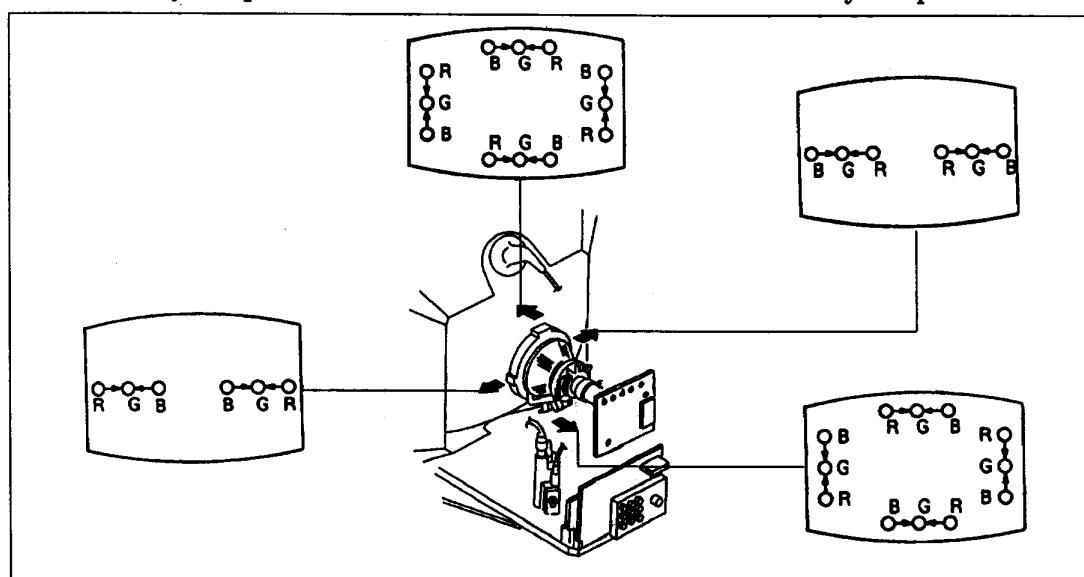
### Preparation

- Before starting perform Horizontal and Vertical static convergence Adjustmet.

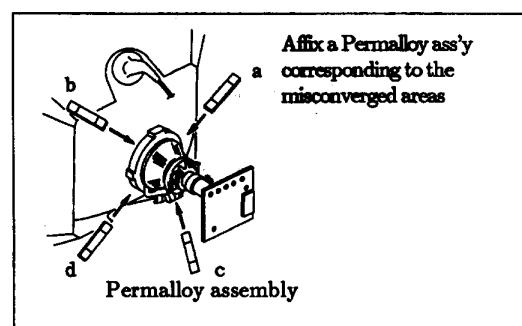
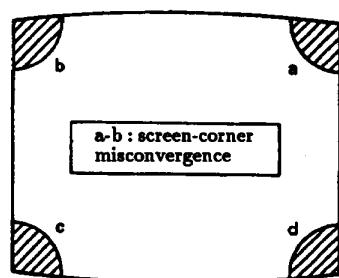
1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.

3. Move the deflection yoke for best convergence as shown below.

4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.



## (3) Screen -corner Convergence



### 3-3. FOCUS

Adjust FOCUS control for best picture.

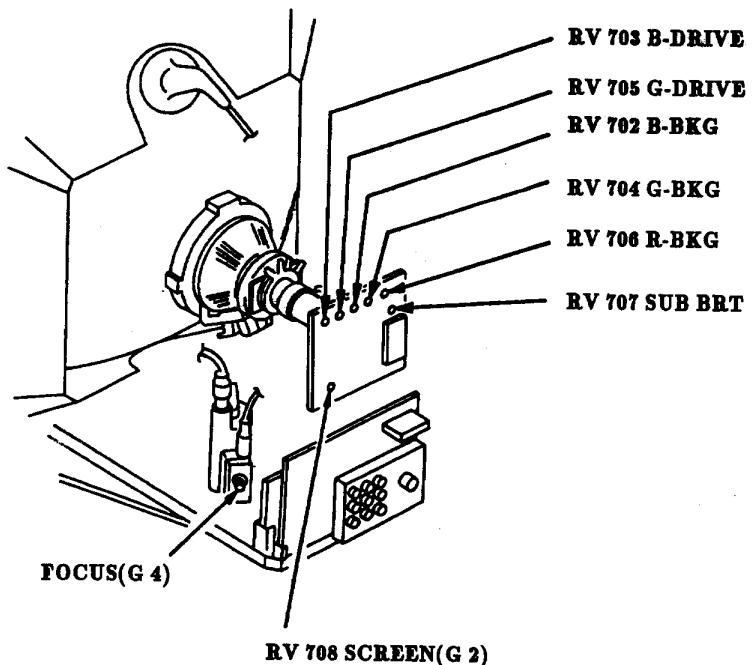
### 3-4. SCREEN(G 2) and WHITE BALANCE

#### [SCREEN(G2)]

1. Input dots pattern.
2. Set the PIC control at minimum and set the BRT control at maximum.
3. Confirm the BKG voltage is less than 180 Vdc when turning RV 706 (R.BKG), RV 704 (G.BKG) and RV 702 (B.BKG).
4. Note the color when becomes visible first when turning RV 708 (SCRN).

#### [WHITE BALANCE(Cut off)]

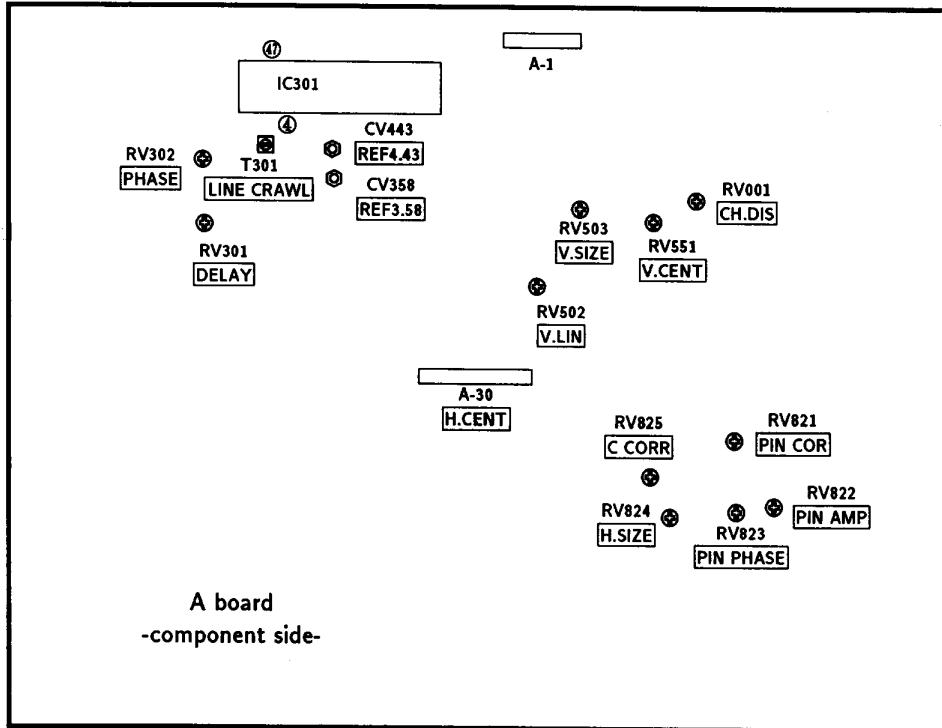
1. Input color bar signl.
2. Set the PIC control to minimum and set the BRT control at normal.
3. Turn RV 703 (B.DRIVE) and RV 705 (G.DRIVE) fully clockwise.
4. Set RV 706 (R.BKG), RV 704 (G.BKG) and RV 702 (B.BKG) to minimum.
5. Turn RV 707 (SUB BRT) slowly to obtain a faintly visible blue stripe.
6. Switch over all white signal.
7. Adjust BKG controls for best white balance.
8. Set the PICTURE control to maximum. Observe the screen and adjust the DRIVE controls for best white balance.
9. Repeat steps 7 and 8.



## SECTION 4

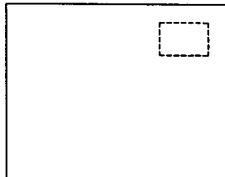
### CIRCUIT ADJUSTMENTS

#### 4-1. A BOARD ADJUSTMENTS



#### **Channel display POSITION ADJUSTMENT (RV001)**

1. Set PIC control to maximum.
2. Adjust RV001 so that the channel display should be positioned at up-right on the screen.



#### **REF OSC 3.58 ADJUSTMENT (CV358)**

#### **(NTSC 3.58)**

1. Short circuit between pin ④ and pin ⑦ of IC301 with a jumper.
2. Set the PIC, COL and BRT controls to normal.
3. Input NTSC 3.58 color-bar signal.
4. Adjust CV358 for suitable color intensity.
5. Remove the jumper.

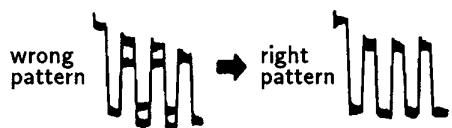
#### **A • P • C ADJUSTMENT (CV443) (PAL)**

1. Input the PAL color-bar signal.
2. Set the PIC, COL, and BRT controls to normal.
3. Short circuit between pin ④ and pin ⑦ of IC301 with jumper.
4. Adjust CV443 for suitable color intensity.
5. Remove a jumper.

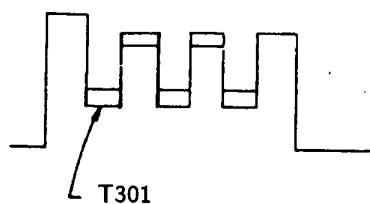
**ANTI PAL, LINE CRAWLING ADJUSTMENT  
(RV301,RV302,T301)**

• ANTI PAL ADJUSTMENT

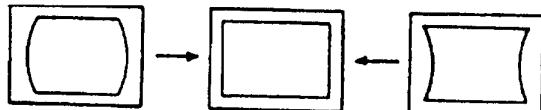
1. Input PAL color-bar signal.
  2. Set the PIC, COL and BRT controls to normal.
  3. Connect the oscilloscope to pin ③ of A-1 connector.
  4. Adjust RV301 (DELAY) and RV302 (PHASE) to obtain the waveform as shown below.
- LINE CRAWLING ADJUSTMENT



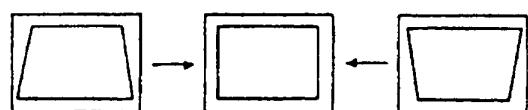
1. Input the PAL color-bar signal.
2. Set the PIC, COL and BRT controls to normal.
3. Connect the oscilloscope to pin ③ of A-1 connector.
4. Adjust T301 for minimum line crawling.



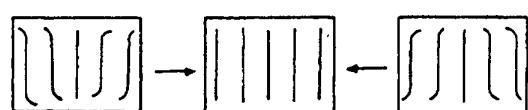
**RV822 PIN ANP (PINCUSHION AMPLIFIER)**



**RV823 PIN PHASE (PINCHUSHION PHASE)**



**RV821 PIN COR (PINCHUSHION CORRECT)**



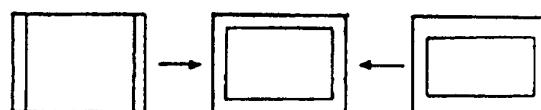
**RV825 C.CORR(CORNER CORRECT)**



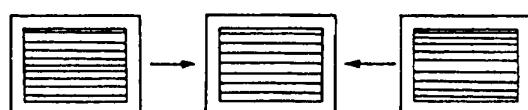
**RV824 H.SIZE (HORIZONTAL SIZE)**



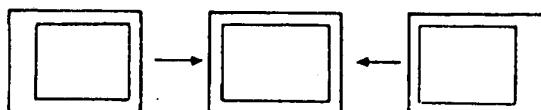
**RV503 V.SIZE (VERTICAL SIZE)**



**RV502 V.LIN (VERTICAL LINEARITY)**



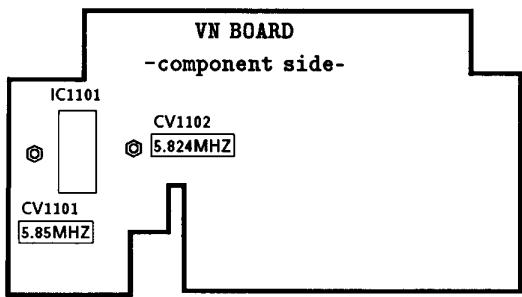
**A-30 H.CENT (HORIZONTAL CENTER)**



**RV551 V.CENT (VERTICAL CENTER)**



## 4-2. VN BOARD ADJUSTMENTS



### 6.552MHz (CARRIER Freq) Adjustment (CV1101)

1. Tune in a NICAM signal.
2. Connect the frequency counter to pin ⑧ of IC1101.
3. Adjust CV1101 so that frequency becomes  $6.552\text{MHz} \pm 30\text{Hz}$ .

- Confirmation

Connect the X input of an oscilloscope to IC1101 pin ⑩, and the Y input to pin ⑫.

Confirm waveform by X-Y mode.

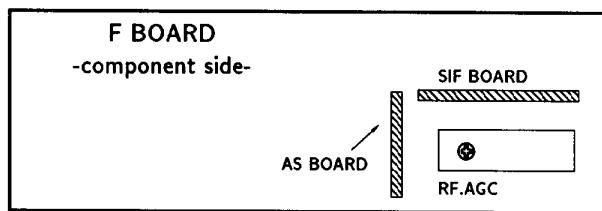
Confirm that waveform as OK observed clearly and without tilt.



### 5.824MHz (Clock Freq) Adjustment (CV1102)

1. Tune in a NICAM signal.
2. Connect the frequency counter to pin ⑩ of IC1101.
3. Adjust CV1102 so that frequency becomes  $5.824\text{MHz} \pm 30\text{Hz}$ .

## 4-3. F BOARD ADJUSTMENTS

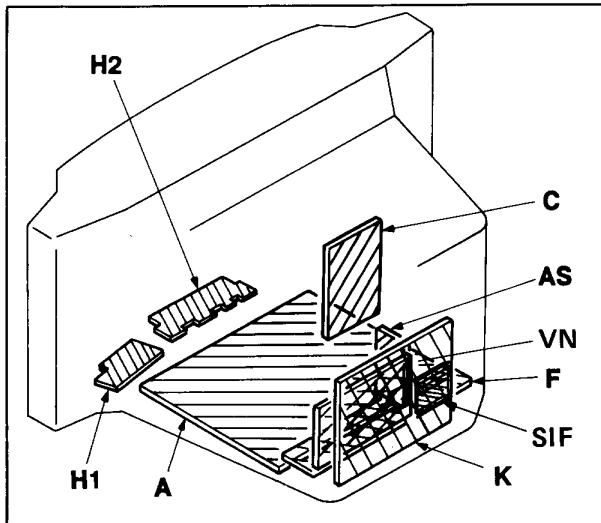


### RF AGC ADJUSTMENT (IF1)

1. Receive a strong off-air signals.
2. Adjust RF AGC VR control so that snow noise and cross-modulation just disappear from the picture.

## SECTION 5 DIAGRAMS

### 5-1. CIRCUIT BOARDS LOCATION



### 5-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS — Conductor Side —

**Note:** The components identified by shading and mark  $\triangle$  are critical for safety. Replace only with part number specified.

**Note:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. p:  $\mu\mu\text{F}$
- 50 WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.
- $\text{k}\Omega = 1000\Omega$ ,  $\text{M}\Omega = 1000\text{K}\Omega$
- Indication of resistance, which does not have one for rating electrical power is as follows.

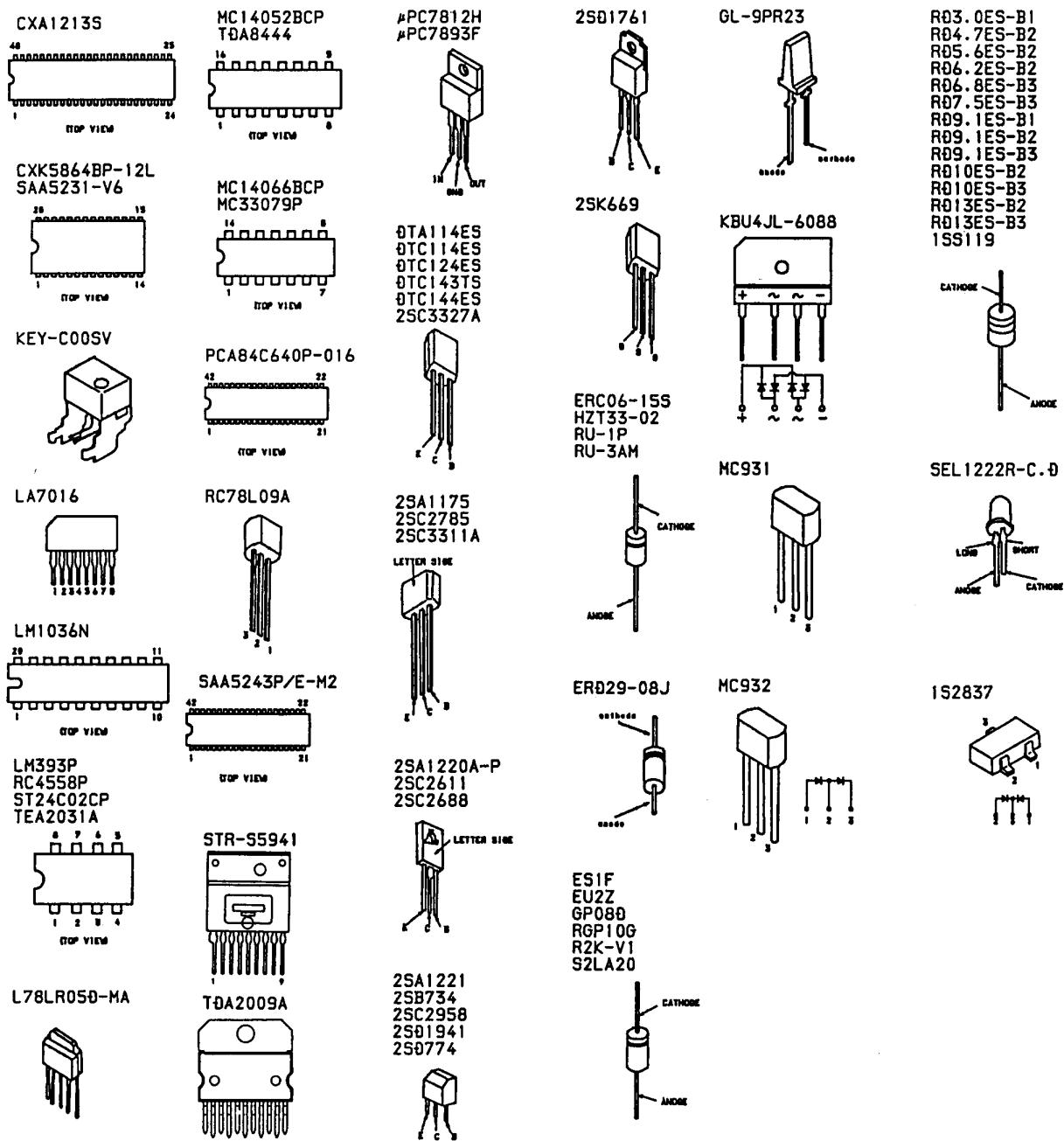
Pitch: 5 mm  
Rating electrical power: 1/4W

- : nonflammable resistor.
- : fusible resistor.
- $\triangle$  : internal component.
- : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a 10 M $\Omega$  digital multimeter.
- Voltage are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- No mark : PAL mode.
- ( ) : SECAM mode.
- < > : NTSC 3.58 mode.
- (( )) : NTSC 4.43 mode.
- All voltages are in V.
- $\times$  : Can not be measured.
- Circle numbers are waveform references.
- : B+ bus.
- : signal path.

Reference information

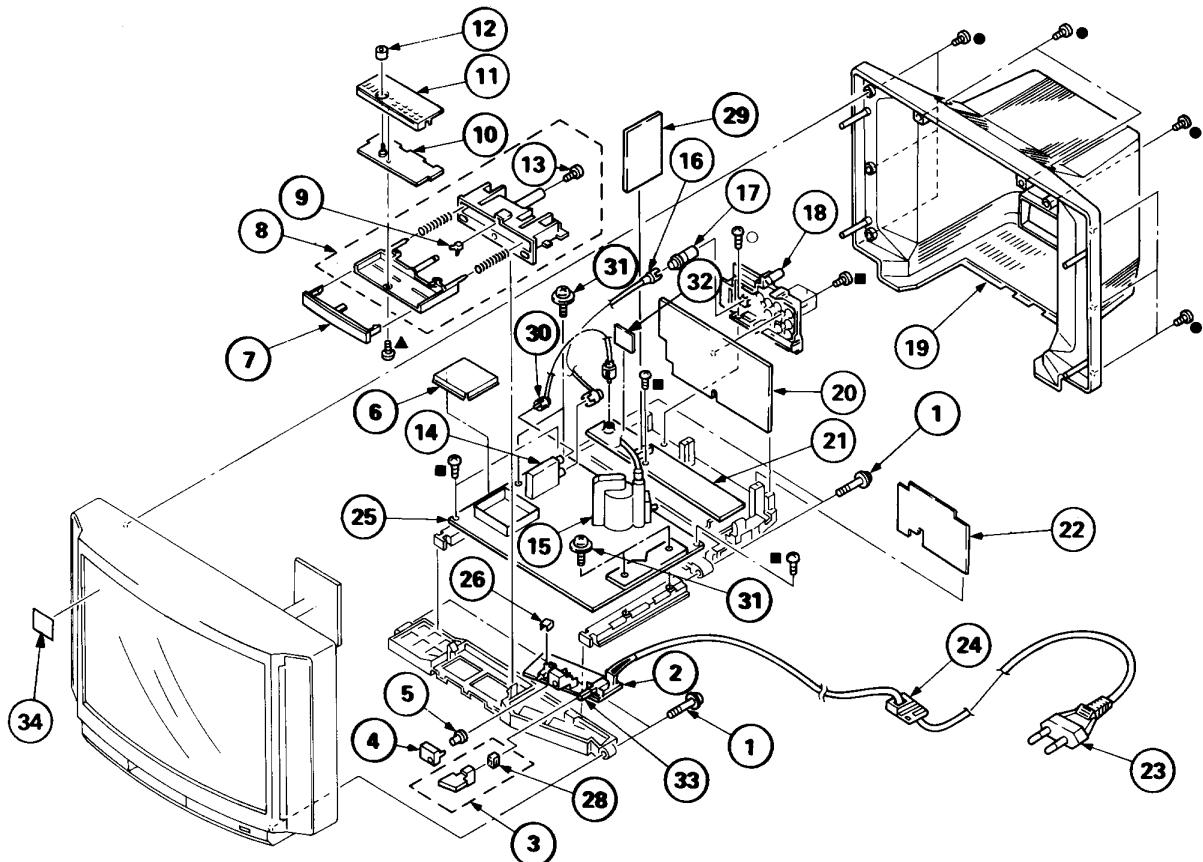
RESISTOR	RN	: METAL FILM
	RC	: SOLID
	FPRD	: NONFLAMMABLE CARBON
	FUSE	: NONFLAMMABLE FUSIBLE
	RS	: NONFLAMMABLE METAL OXIDE
	RB	: NONFLAMMABLE CEMENT
	RW	: NONFLAMMABLE WIREWOUND
	$\ast$	: ADJUSTMENT RESISTOR
COIL	LF-8L	: MICRO INDUCTOR
CAPACITOR	TA	: TANTALUM
	PS	: STYROL
	PP	: POLYPROPYLENE
	PT	: MYLAR
	MPS	: METALIZED POLYESTER
	MPP	: METALIZED POLYPROPYLENE
	ALB	: BIPOLEAR
	ALT	: HIGH TEMPERATURE
	ALR	: HIGH RIPPLE

## **5-3. SEMICONDUCTORS**



## 6-1. CHASSIS

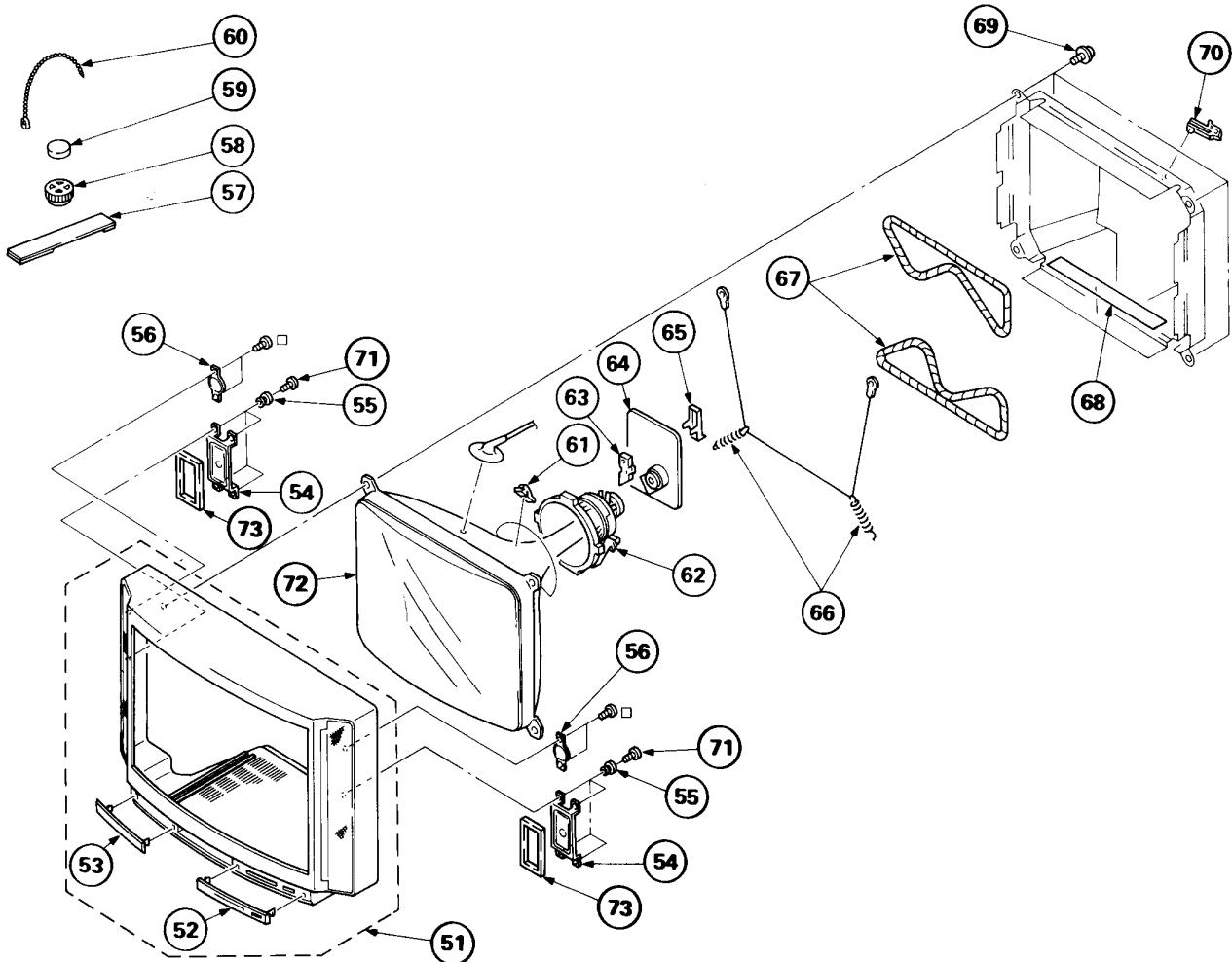
- BVTP4 × 16 7-685-663-79
- BVTP3 × 12 7-685-648-79
- ▲ BVTP3 × 16 7-685-650-79
- BVTP3 × 10 7-685-647-79



## 6-2. PICTURE TUBE

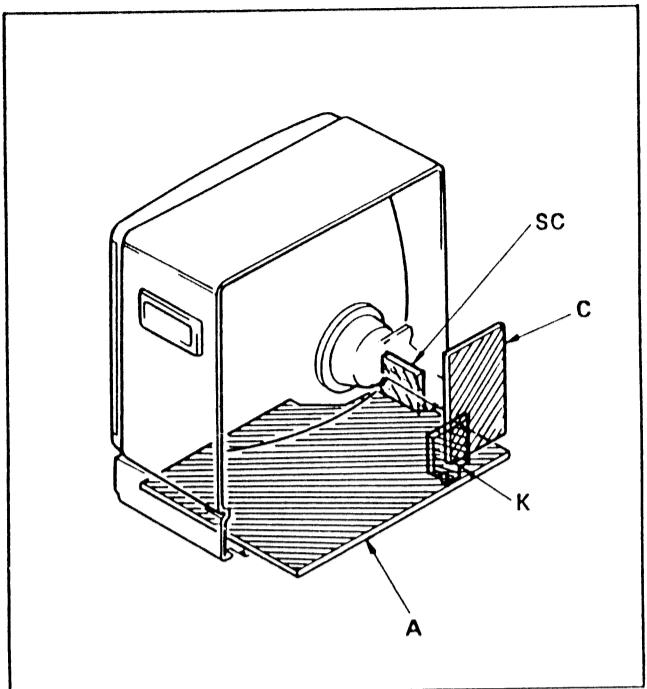
BVTP3 x 12      7-685-648-79

The components identified by shading and mark **A** are critical for safety.  
Replace only with part number specified.



## SECTION 5 DIAGRAMS

### 5.1. CIRCUIT BOARDS LOCATION



#### Note:

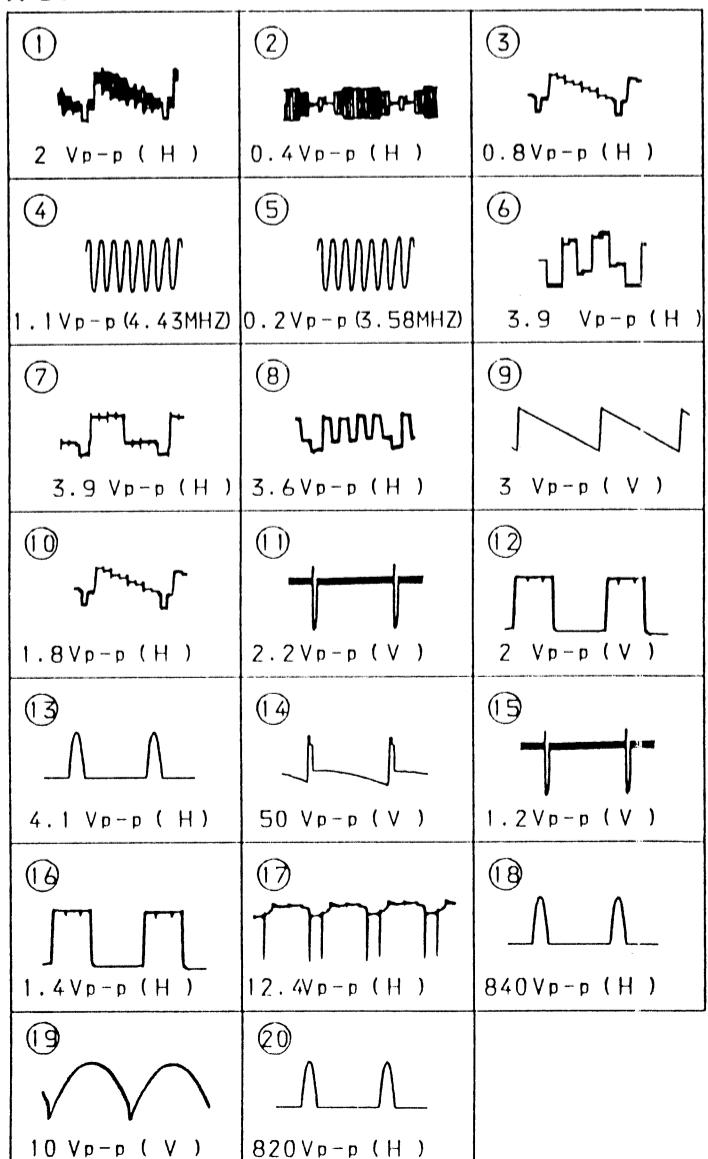
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\mu\text{F}$   
50  $\text{mW}$  or less are not indicated except for electrolytics.
  - Indication of resistance, which does not have one for rating electrical power, is as follows.
- Pitch: 5 mm  
 Rating electrical power  $\frac{1}{4} \text{ W}$
- All resistors are in ohms.
  - : nonflammable resistor.
  - : fusible resistor.
  - : Internal component.
  - : panel designation, and adjustment for repair.
  - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
  - All voltages are in V.
  - Readings are taken with a  $10 \text{ M}\Omega$  digital multimeter.
  - Readings are taken with a color-bar signal input.
  - no mark : with PAL color-bar signal received.  
( ) : with SECAM color-bar signal received.
  - Voltage variations may be noted due to normal production tolerances.
  - : B + bus.
  - : signal path.

**Note:** The components identified by shading and mark are critical for safety. Replace only with part number specified.

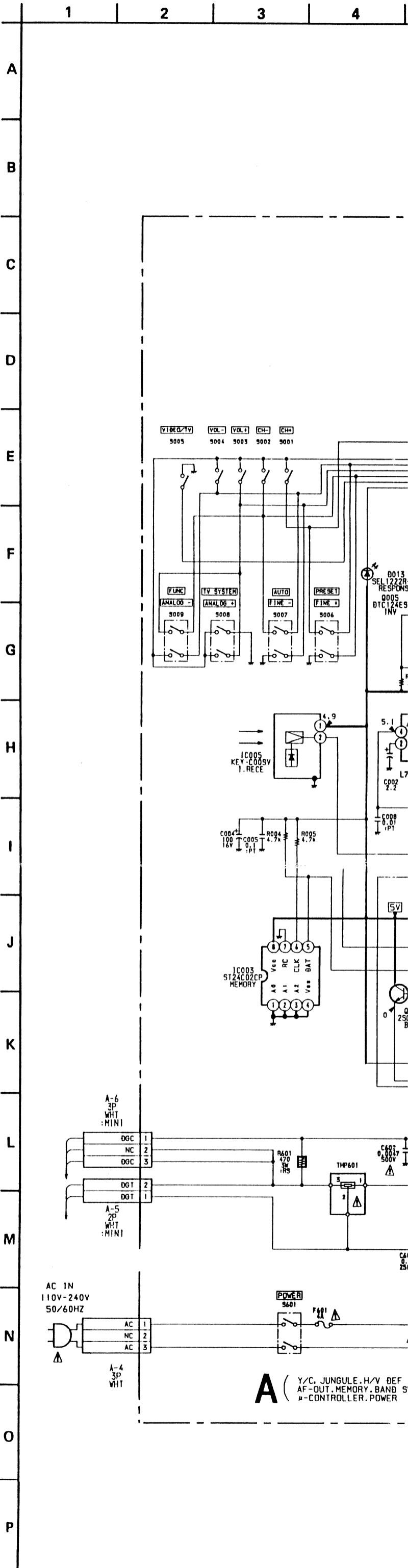
#### Reference Information

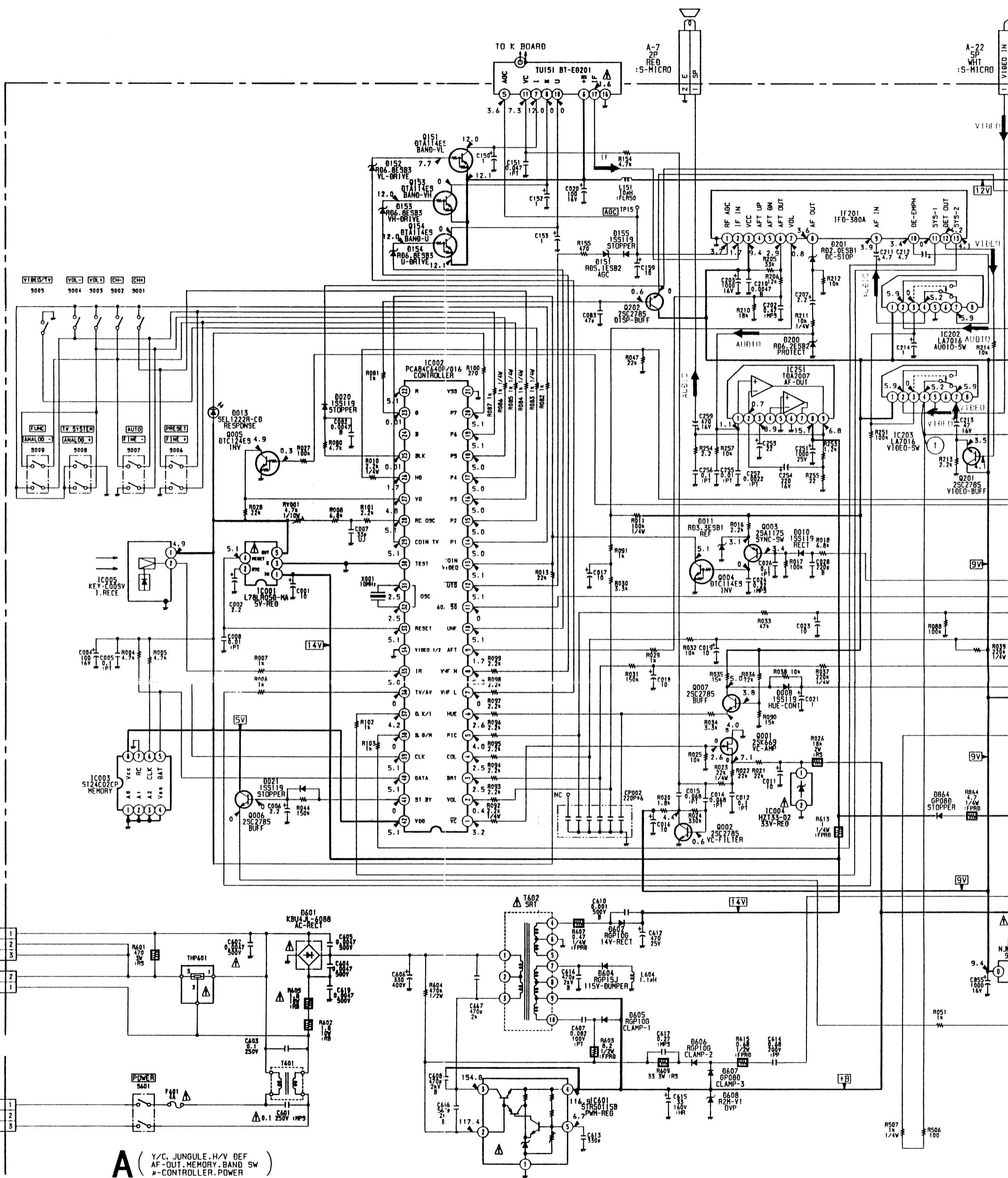
RESISTOR	RN METAL FILM
	RC SOLID
	FPRD NONFLAMMABLE CARBON
	FUSE NONFLAMMABLE FUSIBLE
	RW NONFLAMMABLE WIREWOUND
	RS NONFLAMMABLE METAL OXIDE
	RB NONFLAMMABLE CEMENT
COIL	LF-8L MICRO INDUCTOR
CAPACITOR	TA TANTALUM
	PS STYROL
	PP POLYPROPYLENE
	PT MYLAR
	MPS METALIZED POLYESTER
	MPP METALIZED POLYPROPYLENE
	ALB BIPOLAR
	ALT HIGH TEMPERATURE
	ALR HIGH RIPPLE

#### A BOARD WAVEFORM

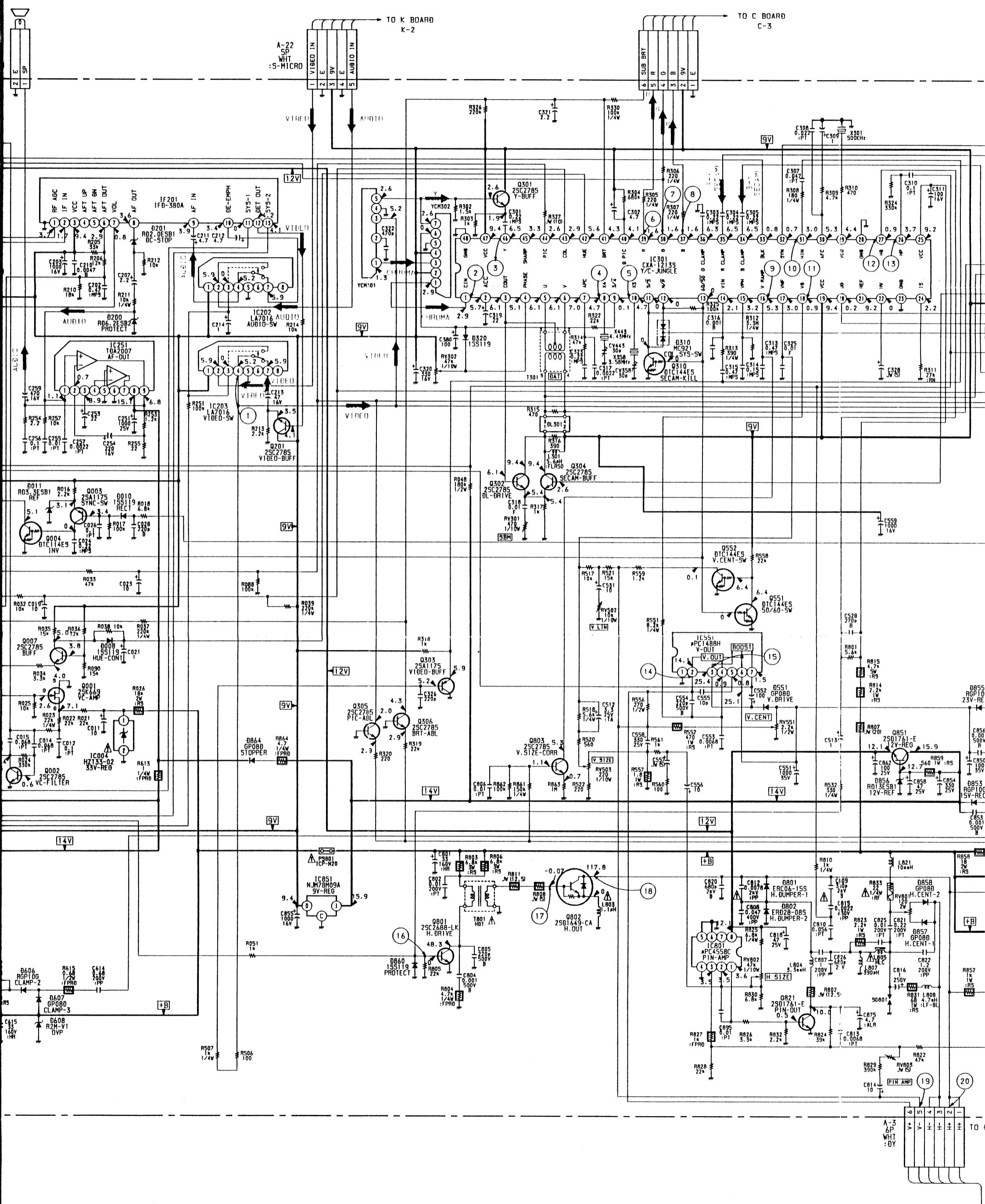


#### 5.2. SCHEMATIC DIAGRAM (1)



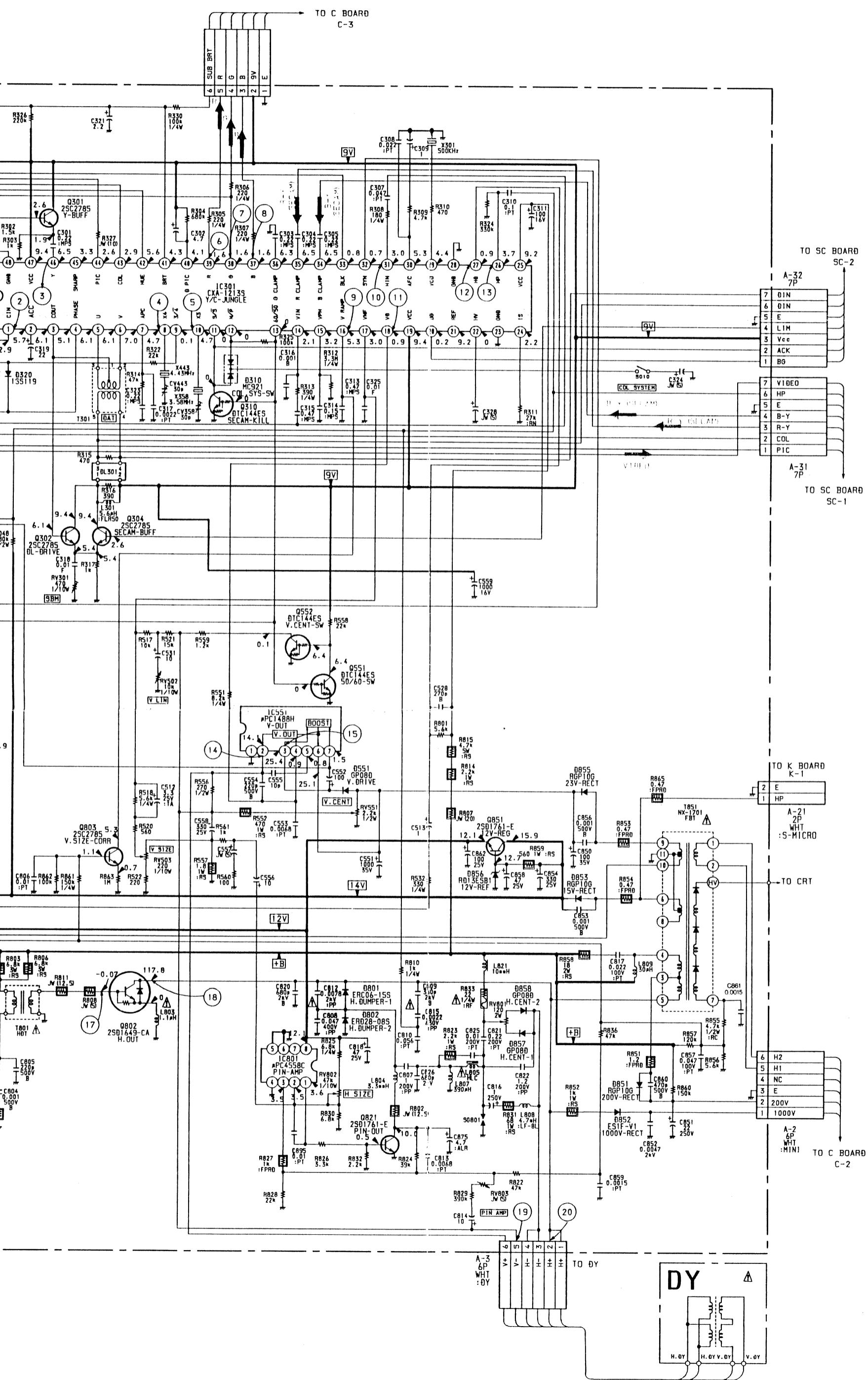


A ( Y/C. JUNGULE. H/V DEF  
AF-OUT. MEMORY. BAND SW  
μ-CONTROLLER. POWER



15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P



KV-1984MT  
RM-687C

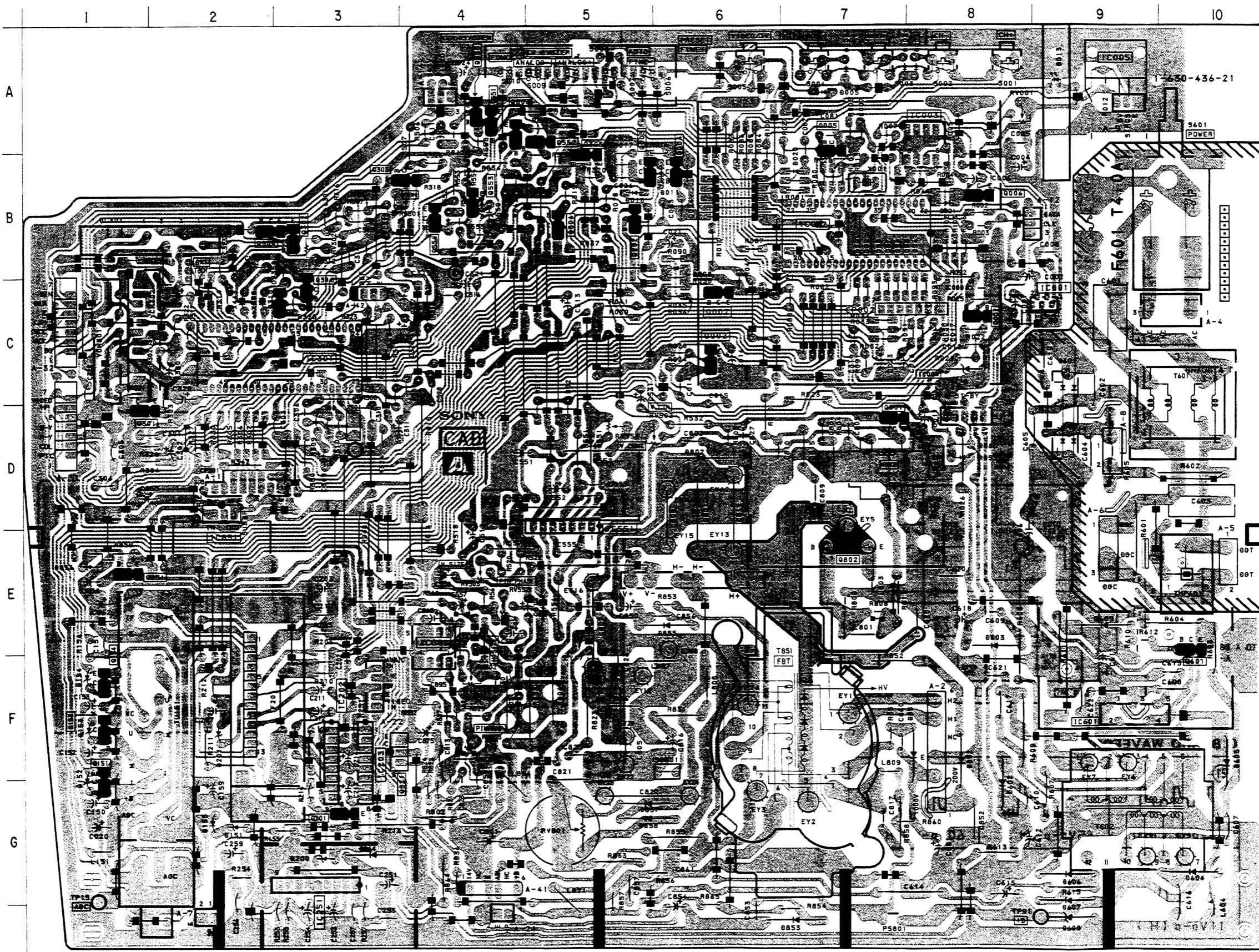
KV-1984MT  
RM-687C

5-3. PRINTED WIRING BOARD (1)  
-CONDUCTOR SIDE-

[Y/C, JUNGLE, H/V DEF  
AF-OUT, MEMORY, BAND SW  
 $\mu$ -CONTROLLER, POWER]

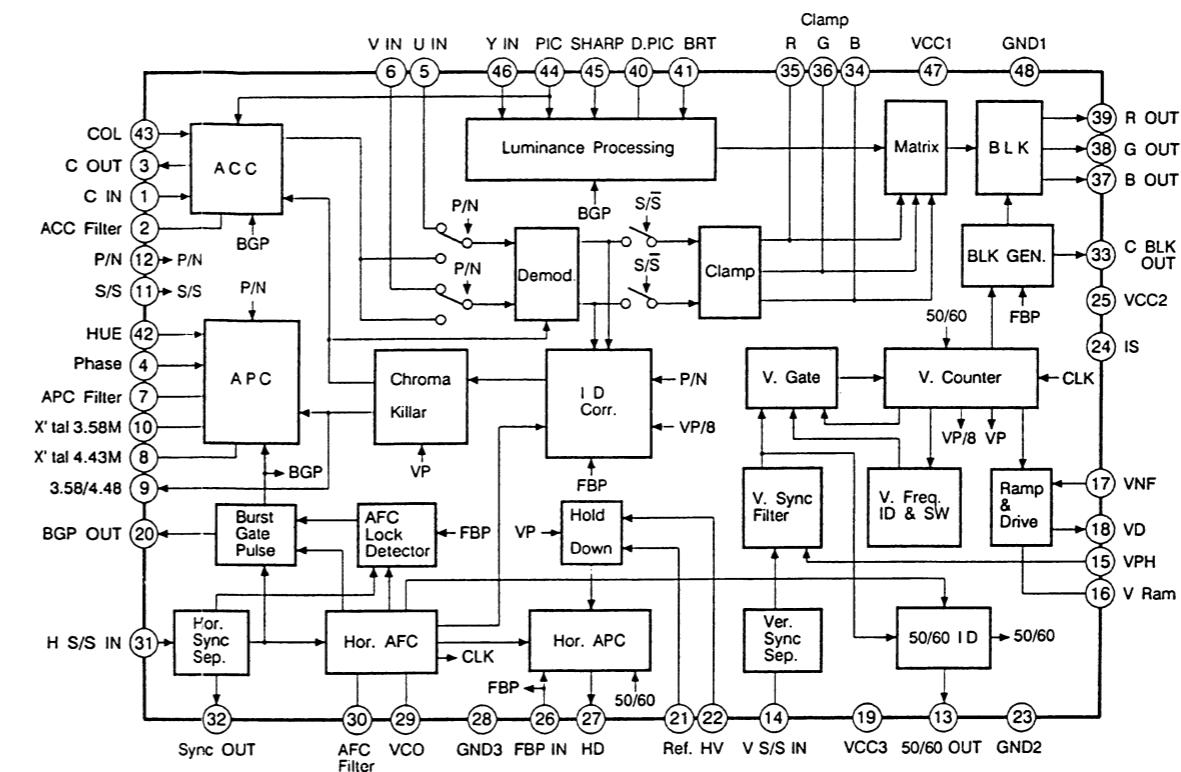
A

A



IC	DIODE	DELAY LINE
IC001	C-9	D008 B-6
IC002	B-7	D010 B-5
IC003	A-8	D011 B-6
IC004	C-8	D013 A-9
IC005	A-9	D020 B-7
IC202	F-3	D021 B-8
IC203	F-3	D151 F-2
IC251	G-3	D152 F-1
IC301	C-3	D153 F-1
IC551	D-5	D154 F-1
IC601	F-9	D155 F-2
IC801	E-4	D200 G-3
IC851	D-2	D201 F-2
<b>IF BLOCK</b>		
		IF201 F-2
<b>TUNER</b>		
		TU151 F-2
<b>TRANSISTOR</b>		
Q001	C-8	D604 G-10
Q002	C-7	X001 B-7
Q003	B-5	X301 D-3
Q004	B-6	X358 C-2
Q005	A-7	X443 C-2
Q006	B-8	
Q007	C-6	D801 D-6
Q151	F-1	D802 D-6
Q153	F-1	D851 F-8
Q154	F-1	D852 F-8
Q201	G-3	D853 G-7
Q202	B-5	D855 E-6
Q301	D-1	D856 E-1
Q302	B-3	D857 G-5
Q303	B-4	D858 G-5
Q304	B-2	D860 D-8
Q305	A-5	D864 G-3
<b>CRYSTAL</b>		
<b>VARIABLE RESISTOR</b>		
Q552	A-5	RV001 A-8
Q801	D-7	RV301 B-4
Q802	E-7	RV302 B-3
Q803	A-4	RV502 D-6
Q821	F-3	RV503 E-4
Q851	E-1	RV551 D-5
		RV801 G-5
		RV802 F-4

• A BOARD IC301 CXA1213S

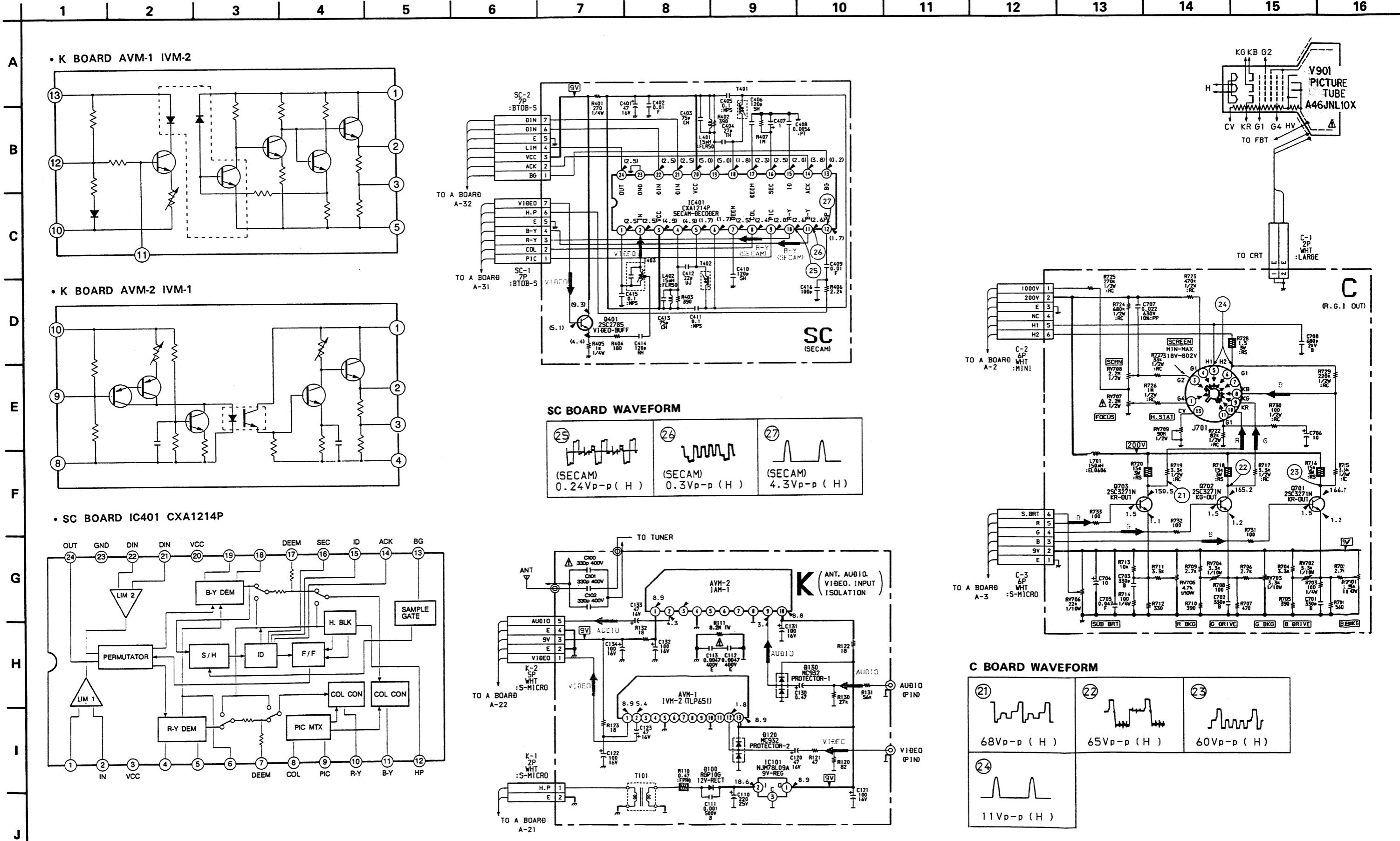


**NOTE:**

The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.



## **SCHEMATIC DIAGRAM (2)**



PRINTED WIRING BOARD (2)

-CONDUCTOR SIDE-

**C**

[R · G · B OUT]

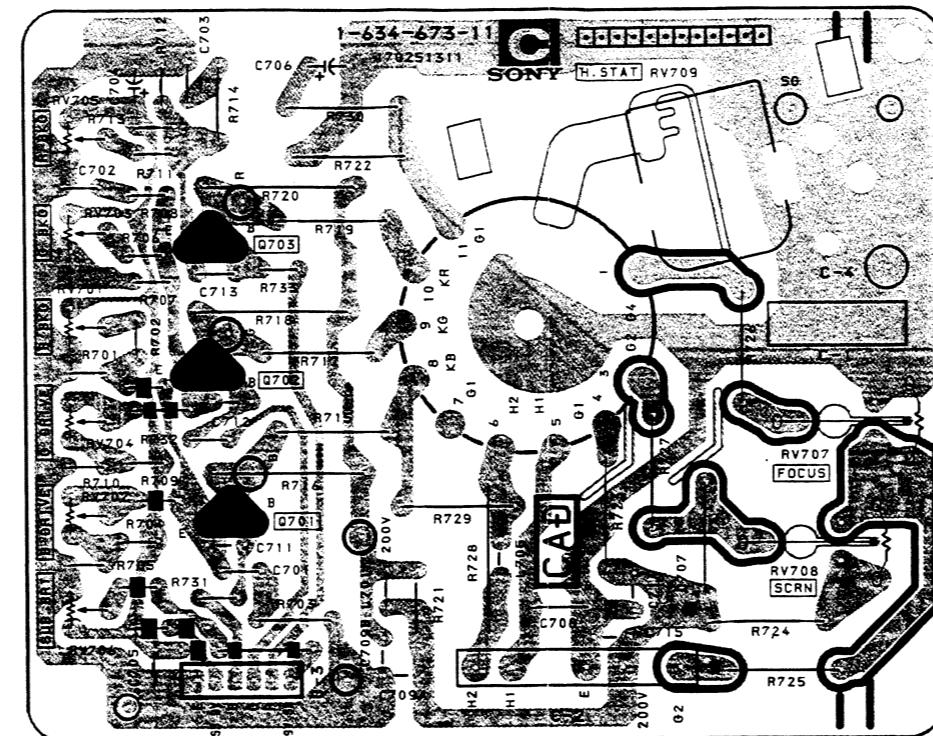
**SC**

[SECAM]

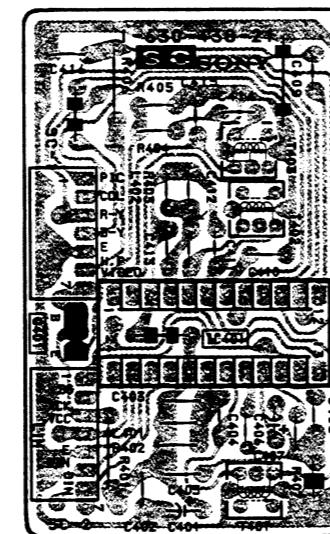
**K**

[ANT, AUDIO  
VIDEO INPUT]

-C BOARD-



-SC BOARD-



-K BOARD-

